RECEIVED
CENTRAL FAX CENTER

NOV 27 2006

REMARKS

Claims 1, 5-28, 30-35, 37-44 and 46-51 are now pending in the application. Claims 1, 10, 11, 22, 23, 30, 34, 37, 38, 39 and 50 are amended herein. Support for the amendment to these claims can be found throughout the application, drawings and claims as originally filed. No new matter is added. Claims 2-4, 29, 36 and 45 are cancelled. The Examiner is respectfully requested to reconsider and withdraw the rejections in view of the amendments and remarks contained herein.

REJECTION UNDER 35 U.S.C. § 112

Claim 10 stands rejected under 35 U.S.C. § 112, second paragraph. Claim 10 is amended herein to be drawn to the "fuel processing system of claim 1" and, therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

REJECTION UNDER 35 U.S.C. § 102 AND § 103

Claims 1-5, 9, 10, 22, 23, and 29 stand rejected either under 35 U.S.C. § 102(b) or under 102(a) and (e) as being anticipated by Dybkjær (U.S. Pat. No. 6,224,789). Claim 25 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Dybkjær. Claims 6, 8, 11-19, 21, 26, and 28 stand rejected as being unpatentable over Dybkjær in view of Yamaoka et al. (U.S. Pat. No. 6,630,109). Claims 7 and 27 stand rejected as being unpatentable over Dybkjær in view of Singh et al. (U.S. Pat. No. 5,523,483). Claim 24 stands rejected as being unpatentable over Dybkjær in view of Matsubayashi et al. (U.S. Pat. No. 6,103,411). Claim 20 stands rejected as being

unpatentable over Dybkjær in view of Yamaoka et al. as applied to Claim 11 above, and further in view of Singh et al. These rejections are respectfully traversed.

Claims 1, 15 and 25 are patentable over the Dybkjaer and Yamaoka references because neither reference singularly nor in combination discloses or suggests the first and second reactors operating at different pressures as called for in Claims 1, 15 and 25. Specifically, Claims 1 and 15 call for "said first and second reactors operate at different pressures." Similarly, Claim 25 calls for "said autothermal reactor operates at a lower pressure than said steam reforming reactor."

In contrast to subject matter called for in Claims 1, 15 and 25, the Dybkjaer reference discloses an autothermal reformer (ATR) that operates in parallel with a heat exchange reformer (HTCR) at a same pressure. Specifically, both the ATR and the HTCR are disclosed as receiving streams that are at 40 bars of pressure. See column 2, lines 35-45 of the Dybkjaer reference. The operating of the ATR and the HTCR both at 40 bars is operating these reactors at the same pressure. The same pressure is not different pressures. Furthermore, Applicants can not find any other disclosure in the Dybkjaer reference associated with the operating pressures of the ATR and the HTCR. Thus, it is respectfully submitted that Dybkjaer reference specifically teaches the operation of the ATR and the HTCR at a same pressure and does not suggest operating these two reactors at different pressures as called for in Claims 1, 15 and 25.

The Yamaoka reference does not make up for the shortcomings of the Dybkjaer reference. The Yamaoka reference only discloses a single reforming portion 4 and does not disclose separate reformate producing reactors that operate at different pressures as called for in Claims 1, 15 and 25. In fact, the Yamaoka reference appears

to be completely unconcerned with two reformate producing reactors operating in parallel. Thus, it is respectfully submitted that the Yamaoka reference does not teach or suggest the subject matter of Claims 1, 15 and 25.

Accordingly, it is respectfully submitted that neither the Dybkjaer reference nor the Yamaoka reference either singularly or in combination teach, disclose or suggest the operation of the two reformate producing reactors at different pressures as called for in Claims 1, 15 and 25. For at least these reasons, it is respectfully submitted that, Claims 1, 15 and 25 are patentable over the prior art of record. Claims 5-10 all depend from Claim 1 and, therefore, for at least the same reasons stated above with reference to Claim 1 are also patentable over the prior art of record. Thus, withdrawal of the instant rejection is requested.

Claim 11 is patentable over the Dybkjaer and Yamaoka references because neither the Dybkjaer nor Yamaoka references disclose two reactors operating in parallel with each producing a reformate that join together downstream of the second reactor without the first reformate flowing through the second reactor as called for in Claim 11. Specifically, Claim 11 calls for "said second reactor being coupled in parallel with said first reactor with said first and second reformates combining to form a reformate flow downstream of said second reactor without said first reformate flowing through said second reactor."

In contrast to the subject matter of Claim 11, the Dybkjaer reference discloses an ATR and an HTCR operated in parallel. The reformate 8 formed by the ATR flows through the HTCR to exchange heat and facilitate the endothermic reaction therein. The reformate stream 8 then joins with the reformate stream produced by the HTCR

after reformate stream 8 flows through the HTCR. See at least Figure 1 and column 2, lines 19-27 of the Dybkjaer reference. As the reformate stream produced by the ATR is used to provide heat for the endothermic reaction within the HTCR, Applicants can find no suggestion to have the reformate stream from the ATR join with the reformate from the HTCR without first passing through the HTCR. Thus, for at least this reason it is respectfully submitted that the Dybkjaer reference does not teach or suggest the subject matter of Claim 11 and, rather, teaches away from such subject matter.

Additionally, the Yamaoka reference also does not teach or suggest the subject matter of Claim 11. Rather, as stated above, the Yamaoka reference only discloses a single reforming portion 4 and does not disclose two separate reactors that each produce a reformate stream. Accordingly, the Yamaoka reference is completely silent about the combining of reformate streams produced in separate reformate reactors. Thus, it is respectfully submitted that the Yamaoka reference does not teach or suggest the subject matter of Claim 11.

Accordingly, it is respectfully submitted that neither the Dybkjaer reference nor the Yamaoka reference either singularly or in combination teach or suggest the subject matter of Claim 11. For at least this reason it is respectfully submitted that Claim 11 is patentable over the prior art of record. Claims 12-21 all depend from Claim 11 and, therefore, for at least the same reasons as stated above with reference to Claim 11 are also patentable over the prior art of record. Thus, withdrawal of the instant rejection is requested.

Claims 9, 21 and 22 are patentable over the Dybkjaer and Yamaoka references because none of the references, either singularly or in combination, disclose or suggest

the two different reactors each having different transient response times as called for in Claims 9, 21 and 22. Specifically, Claims 9 and 21 each call for "wherein said first reactor has a first transient response time and said second reactor has a second transient response time that is greater than said first transient response time." Similarly, Claim 22 calls for "wherein said autothermal reactor has a first transient response time and said steam reforming reactor has a second transient response time that is greater than said first transient response time."

In contrast to the subject matter of Claims 9, 21 and 22, the Dybkjaer reference does not disclose any response times for the ATR or the HTCR. In fact, the Dybkjaer reference appears to be completely silent about any type of response of these two reactors, much less a transient response time. Additionally, the Yamaoka reference does not disclose two separate reactors and, accordingly, is also silent about response times and/or transient response times for different reactors. For at least these reasons, it is respectfully submitted that neither the Dybkjaer reference nor the Yamaoka reference, either singularly or in combination, teach or suggest two different reactors having two different response times as called for in Claims 9, 21 and 22.

Additionally, in rejecting these claims the Office Action states that "because these two reformers are the same as those claimed, the response time and relationship would also inherently accrue." It is respectfully submitted, however, that such relationship is not necessarily inherently true and, furthermore, the Examiner has failed to state a proper rejection of these claims. There is no indication in either reference of a response time much less a relative transient response time as called for. Additionally, it is also respectfully submitted that a myriad of mechanizations, operating conditions and

configurations for the reactors can be employed that can alter the response times of the reactors. As such, it is respectfully submitted that it is not inherent that the response times would differ as called for in Claims 9, 21 and 22.

For at least these reasons, it is respectfully submitted that Claims 9, 21 and 22 are patentable over the prior art of record. Claims 23-28 all depend from Claim 22 and, therefore, for at least the same reasons stated above with reference to Claim 22 are also patentable over the prior art of record. Thus, withdrawal of the instant rejection is requested. If the Examiner maintains this rejection, the Examiner is respectfully requested to point to a proper reference that discloses differing transient response times for the claimed reformate producing reactors.

Additionally, Claims 6, 19 and 26 are further patentable over the Dybkjaer and Yamaoka references because none of these references, either singularly or in combination, teach or suggest thermal energy being extracted from a first reformate and used to vaporize a feed stream flowing to a second reactor as called for in Claims 6, 19 and 26. Specifically, Claims 6 and 19 each call for "wherein thermal energy is extracted from said first reformate and used to vaporize a feed stream supplied to a second reactor." Similarly, Claim 26 calls for "wherein thermal energy is extracted from said first reformate and used to vaporize a feed stream supplied to said steam reforming reactor."

In contrast, the Dybkjaer reference uses heat from the reformate produced by the ATR to heat the catalyst inside the HTCR. The Dybkjaer reference does not teach or suggest extracting energy from the reformate flow to vaporize the fuel or steam being supplied to the HTCR before the fuel or steam is supplied to the HTCR. Additionally,

the Dybkjaer reference specifically discloses the supplying of steam and natural gas to the HTCR. Steam and natural gas are already vaporized and, thus, there is no motivation to use heat from the ATR reformate to vaporize either the steam or natural gas being supplied to the HTCR. Accordingly, it is respectfully submitted that there is no teaching or suggestion in the Dybkjaer reference to extract energy from the reformate to vaporize a feed stream flowing to a second reactor as called for in Claims 6, 19 and 26.

Additionally, the Yamaoka reference discloses a vaporizer 7 to vaporize a fuel and air mix. Vaporizer 7 is heated solely by heat exchange with a combuster 6 through heat exchange 12. Combuster 6 is fed fuel, air and anode effleunt stream 22. See at least Figure 20 and column 8, lines 16-33 of the Yamaoka reference. The reformate stream produced by reforming portion 4 is not used to heat the vaporizer 7. In fact, the reformate does not appear to be used to heat anything in the Yamaoka reference. Accordingly, it is respectfully submitted that there is no teaching or suggestion in the Yamaoka reference to extract energy from the reformate to vaporize a feed stream flowing to a second reactor as called for in Claims 6, 19 and 26.

For at least these reasons, it is respectfully submitted that neither the Dybkjaer nor the Yamaoka references either singularly or in combination disclose, suggest or provide motivation to extract thermal energy from a first reformate and use it to vaporize a feed stream supplied to a second reactor as called for in Claims 6, 19 and 26. Thus, it is respectfully submitted that Claims 6, 19 and 26 are further patentable over the prior art of record and withdrawal of the instant rejection is requested.

Claims 8, 16 and 28 are further patentable over the Dybkjaer and Yamaoka references because neither the Dybkjaer nor Yamaoak references either singularly or in combination teach, suggest or provide motivation to have a catalytic oxidizer that reacts a portion of the reformate flow to heat a downstream reactor as called for in Claims 8, 16 and 28. Specifically, each of Claims 8, 16 and 28 call for "a catalytic oxidizer reacting a portion of said reformate flow to heat a downstream reactor."

In contrast to the subject matter of Claims 8, 16 and 28, the Dybkjaer reference does not disclose any type of catalytic oxidizer much less reacting a portion of the reformate flow in a catalytic oxidizer to heat a downstream reactor. For at least this reason, it is respectfully submitted that the Dybkjaer reference does not disclose, suggest or provide any motivation to arrive at the subject matter of Claims 8, 16 and 28.

Furthermore, the Yamaoka reference also fails to disclose, suggest or provide motivation to arrive at the subject matter of Claims 8, 16 and 28. Rather, the Yamaoka reference discloses a CO oxidation portion 5 that receives reformate gas from reforming portion 4. The CO oxidation portion 5 removes CO with a CO oxidizing catalyst and an air feed portion 14. The Yamaoka reference, however, does not disclose the use of any heat generated therein to heat a downstream reactor. See at least Figure 20 and column 8, lines 59-67 of the Yamaoka reference. Thus, it is respectfully submitted that the Yamaoka reference fails to teach, suggest or provide motivation to have a catalytic oxidizer that reacts a portion of the reformate flow to heat a downstream reactor as called for in Claims 8, 16 and 28.

Furthermore, when rejecting Claims 8, 16 and 28, the Office Action seems to indicate that the CO oxidation portion 5 would heat up due to an exothermic reaction

therein and, thus, heat "a reactor." It is respectfully submitted, however, that such a rejection is flawed in that whether or not CO oxidation portion 5 has an exothermic reaction therein, the heating of itself is not the heating of a downstream reactor as called for in Claims 8, 16 and 28. The CO oxidation portion 5 is not a downstream reactor. Additionally, with the Yamaoka reference being silent about the generation of any heat it is respectfully submitted that the Yamaoka reference does not provide any motivation to use any heat generated in CO oxidation portion 5 to heat any other component, much less a downstream reactor as called for in Claims 8, 16 and 28.

Thus, for at least these reasons it is respectfully submitted that Claims 8, 16 and 28 are further patentable over the prior art of record and withdrawal of the instant rejection is requested.

Claim 23 is patentable over the Dybkjaer reference because the Dybkjaer reference fails to disclose or suggest thermal energy being extracted from the first reformate and used to heat the steam reforming reactor without flowing through the steam reforming reactor as called for in Claim 23. Specifically, Claim 23 calls for "wherein thermal energy is extracted from said first reformate and used to heat said reforming reactor without flowing through said steam forming reactor."

In contrast, the Dybkjaer reference discloses that the reformate 8 produced by the ATR flows through the HTCR to provide heat to support the endothermic reactions in the HTCR-catalyst. The flowing of the reformate through the HTCR is not the same as extracting thermal energy without flowing through the steam reforming reactor as called for in Claim 23. Thus, for at least this additional reason it is respectfully

submitted that Claim 23 is patentable over the prior art of record and withdrawal of the instant rejection is requested.

Claims 30-48, 50 and 51 stand rejected as being unpatentable over Dybkjær in view of Yamaoka et al. as applied to Claims 6, 8, 11-19, 12, 26, and 28 above, and further in view of Echigo et al. (JP 2000-285948). Claim 49 stands rejected as being unpatentable over Dybkjær in view of Yamaoka et al. and Echigo et al. as applied to Claim 30 above, and in view of Singh et al. These rejections are respectfully traversed.

Claim 30 is patentable over the Dybkjaer, Yamaoka and Echigo references because none of these references either singularly or in combination teach, suggest or provide motivation to produce at least a portion of the first reformate flow in a partial oxidation reaction and adjusting at least one of the first and second rates so that all of the reformate flow is provided by the first reformate flow during a cold start-up of the fuel processing system as called for in Claim 30. Specifically, Claim 30 calls for "wherein during a cold start-up of the fuel processing system step (b) includes producing at least a portion of said first reformate flow in a partial oxidation reaction and step (e) includes adjusting at least one of said first and second rates so that all of said reformate flow is provided by said first reformate flow."

In contrast, none of the references teach, suggest or are concerned with a cold start-up of a fuel processing system, much less the subject matter of Claim 30. Rather, the Dybkjaer reference merely discloses an ATR and an HTCR that operate in parallel with one another to produce a product gas. The ATR is operated to provide a heat input to facilitate the reforming reaction within the HTCR. There does not appear to be any

disclosure, suggestion or motivation in the Dybkjaer reference to adjust the production of the reformates produced by the ATR and the HTCR, much less adjusting the production to achieve certain operating parameters as called for in Claim 30. Additionally, the Dybkjaer reference is completely silent about and does not appear to be concerned with a cold start-up of a fuel processing system. Thus, for at least these reasons it is respectfully submitted that the Dybkjaer reference fails to teach, disclose or provide motivation to operate a fuel processing system during a cold start-up as called for in Claim 30.

Furthermore, the Yamaoka reference fails to disclose two reactors, much less the adjusting of the production of the two reactors during a cold start-up of a fuel processing system. Thus, for at least this reason it is respectfully submitted that the Yamaoka reference fails to teach, disclose or provide motivation to operate a fuel processing system during a cold start-up as called for in Claim 30.

Furthermore, the Echigo reference also fails to disclose, suggest or provide motivation to arrive at the subject matter of Claim 30. Rather, the Echigo reference appears to disclose the use of three steam reforming reactors (refining machine 3) that all operate in parallel to meet the fuel needs of a fuel cell stack 1. Each of the steam reactors is described as being capable of providing only a portion of the maximum load demand of the fuel cell stack. For example, in the configuration shown in Figure 1 of the Echigo reference, each individual refining system 200 is disclosed as being capable of producing 1/3 of the maximum load demand of the fuel cell stack. See paragraph [0013] of the Echigo reference. The Echigo reference does not appear to have reference to a cold start-up. Additionally, in the Echigo reference all the reactors are

steam reforming reactors and none of the reactors are autothermal reforming reactors. With the Echigo reference being only concerned with steam reforming reactors, the Echigo reference is completely unconcerned with a cold start-up of a fuel processing system wherein an autothermal reactor is utilized in parallel with a steam reforming reactor. Additionally, the Echigo reference also appears to disclose that all of the steam reforming reactors operate at the same time just at varying operational levels to meet the reformate needs for the fuel cell stack. The Echigo reference does not appear to disclose all of the reformate being supplied by a single one of the reactors.

Thus, it is respectfully submitted that the Echigo reference is completely unconcerned with a cold start-up of a fuel processing system having an autothermal reformer that operates in parallel with a steam reforming reactor. Furthermore, it is respectfully submitted that the Echigo reference is completely unconcerned with operating such reactors during a cold start-up of a fuel processing system. In fact, the Echigo reference appears to be completely silent about any type of cold start-up of the fuel processing system. With the Echigo reference being so unconcerned with the subject matter of Claim 30, it is respectfully submitted that the Echigo reference does not provide any teaching, suggestion or motivation to arrive at the subject matter called for in Claim 30.

Accordingly, it is respectfully submitted that none of the prior art references either singularly or in combination teach, suggest or provide motivation to operate a fuel processing system during a cold start-up as called for in Claim 30. With the prior art references lacking such a teaching, suggestion and motivation, it is respectfully submitted that Claim 30 is patentable and withdrawal of the instant rejection

is requested. Furthermore, Claims 31-35, 37-44 and 46-51 all depend from Claim 30 and, therefore, for at least the same reasons stated above with reference to Claim 30 are also patentable over the prior art of record. Thus, withdrawal of the instant rejection is requested.

Additionally, Claim 34 is patentable over the prior art of record because none of the Dybkjaer, Yamaoka or Echigo references disclose, suggest or provide motivation to have a majority of the reformate flow provided by the steam reforming reactor during nominal operation of the fuel processing system as called for in Claim 34. Specifically, claim 34 calls for "adjusting at least one of said first and second rates so that a majority of said reformate flow is provided by said second reformate flow during nominal operation of the fuel processing system."

In contrast to this subject matter, the Dybkjaer reference appears to disclose the operation of both the ATR and the HTCR in unison and does not disclose a majority of the reformate being provided by the HTCR. Additionally, the Yamaoka reference does not disclose two separate reformate producing reactors much less a method of operating the two reactors relative to one another. Additionally, the Echigo reference is only concerned with steam reforming reactors and, thus, is not at all concerned with nominal operation of the fuel processing system wherein the reformate flow is produced by both an autothermal reactor and a steam reforming reactor much less adjusting their outputs so that a majority of the reformate is provided by the steam reforming reactor. Accordingly, it is respectfully submitted that Claim 34 is nonobvious and patentable over the prior art of record and withdrawal of the instant rejection is requested.

If the Examiner wishes to maintain the rejection, the Examiner is respectfully requested to point out where nominal operation of a fuel processing system is disclosed and wherein such novel operation results in a majority of the reformate being provided by a second reformate flow from a steam reforming reactor as called for in Claim 34. Absent such a showing, withdrawal of the instant rejection is requested.

Moreover, claim 37 is further patentable because none of the Dybkjaer, Yamaoka or Echigo references teach, suggest or provide motivation to have a partial oxidation reaction occur at an oxygen to carbon ratio of at least 1.0 as called for in claim 37. Specifically, claim 37 calls for "wherein said partial oxidation reaction occurs at an oxygen to carbon ratio of at least 1.0." Applicants can find no teaching, suggestion or disclosure of any type of oxygen to carbon ratio in the prior art of record. The only reference utilized in the rejection of this claim that includes an autothermal reactor is the Dybkjaer reference which fails to disclose any type of oxygen to carbon ratio, much less a ratio of at least 1.0 that is called for in claim 37. Thus, it is respectfully submitted that the Examiner has not shown where the subject matter of claim 37 is taught, suggested or motivation is provided in the prior art references to arrive at the subject matter. Absent such a showing, withdrawal of the instant rejection is requested.

Claims 38 and 39 are patentable over the Dybkjaer, Yamaoka and Echigo references because none of the references either singularly or in combination teach, disclose or provide motivation to have an H_2O and/or a CO adsorber and operated to remove or releasing H_2O and/or CO, respectively, from or into a reformate flow as called for in Claims 38 and 39. Specifically, claim 38 calls for "removing H_2O from said reformate flow in an H_2O adsorber . . . removing CO from said reformate flow in a CO

adsorber." Claim 39, which depends from claim 38, further calls for "releasing adsorbed H_2O from said H_2O adsorber into said reformate flow . . . releasing adsorbed CO from said CO adsorber into said reformate flow."

In contrast, none of the references cited in the rejection disclose an H_2O adsorber nor a CO adsorber. With the prior art references completely lacking an H_2O adsorber and a CO adsorber, the prior art references certainly do not disclose, suggest or provide motivation to remove H_2O or CO from a reformate flow as called for in claim 38 or releasing adsorbed H_2O and adsorbed CO from the H_2O adsorber and the CO adsorber into the reformate flow as called for in Claim 39. Accordingly, it is respectfully submitted that the subject matter of claims 38 and 39 and nonobvious and are patentable over the prior art of record and withdrawal of the instant rejection is requested.

Furthermore, the Office Action states that such adsorbers are known in the art. It is respectfully submitted, however, that the mechanization of the present application puts such adsorbers to unique use and, as such, are nonobvious. If the Examiner wishes to maintain the rejection of claims 38 and 39, the Examiner is respectfully requested to specifically point out where such adsorbers are disclosed and used in the manner called for in claims 38 and 39. Absence such a showing, withdrawal of the instant rejection is requested.

Claims 40 and 41 are patentable over the Dybkjaer, Yamaoka and Echigo references because none of these references either singularly or in combination teach, suggest or provide motivation to adjust the rates of reformate provided by the first and second reactors during an upward transient as called for in claims 40 and 41.

Specifically, claim 40 calls for "adjusting said first rate so that said first reformate provides a majority of an upward transient change in said target H_2 production rate during an upward transient operation." Claim 41, which depends from claim 40 further calls for "producing a change in said first rate by increasing a portion of said first reformate produced in a partial oxidation reaction."

In contrast to the subject matter called for in claims 40 and 41, the prior art references do not appear to be concerned with upward transient operation of a fuel processing system that utilizes both an autothermal reactor and a steam reforming reactor to produce the reformate flows. Specifically, the Dybkjaer reference does not have any disclosure of transient operation of the fuel processing system therein. Rather, the Dybkjaer reference merely discloses the parallel operation of the ATR with the HTCR wherein the ATR provides a reformate flow that is used to facilitate the reaction within the HTCR. There is no disclosure, teaching or motivation provided in the Dybkjaer reference to adjust the operation during an upward transient change in a target H_2 production rate. With the Dybkjaer reference being completely silent on such transients, there is no suggestion or motivation of the Dybkjaer reference to operate the fuel processing system as called for in claims 40 and 41.

Additionally, the Yamaoka reference does not disclose two separate reactors to produce reformate flows and, accordingly, is completely unconcerned with the subject matter of claims 40 and 41. Additionally, the Echigo reference utilizes only steam reforming reactors that operate in parallel to meet the reformate needs of the fuel cell stack. During an upward transient, the Echigo reference discloses increasing the production output of each of the steam reforming reactors. The Echigo reference also

appears to disclose that the steam reforming reactors are operated generally at a same operating condition to facilitate meeting the transient needs. The Echigo reference fails to disclose a preferential treatment of one of the reactors to provide a majority of the increased reformate need during an upward transient. Additionally, with the Echigo reference being only concerned with steam reformate reactors and completely unconcerned with the use of an autothermal reactor in parallel operation with the steam reforming reactor, the Echigo reference most certainly does not provide any teaching, suggestion or motivation to change the first rate of reformate production by increasing the partial oxidation reaction as called for in claim 41. Thus, it is respectfully submitted that the Echigo reference also fails to teach, suggest or provide motivation to arrive at the subject matter called for in claims 40 and 41.

With the prior art of record failing to teach, suggest or provide motivation, either singularly or in combination, to arrive at the subject matter of claims 40 and 41, it is respectfully submitted that these claims are further patentable over the prior art of record and withdrawal of the instant rejection is requested.

Claims 42 and 43 are patentable over the Dybkjaer, Yamaoka and Echigo references because none of the references either singularly or in combination teach, suggest or provide motivation to adjust a rate of production of the steam reforming reactor to provide a majority of a downward transient change in a target H_2 production rate and accomplish such by restricting the second reformate and increasing pressure in the steam reforming reactor as called for in claims 42 and 43. Specifically, claim 42 calls for "adjusting said second rate so that said second reformate provides a majority of a downward transient change in said target H_2 production rate during a downward

transient operation." Claim 43, which depends from claim 42 further calls for "restricting said second reformate and increasing pressure in said second reactor."

In contrast to the subject matter of claims 42 and 43, the Dybkjaer reference is completely unconcerned with transient operation of its fuel processing system, as stated above with reference to claims 40 and 41. With the Dybkjaer reference being completely unconcerned with transient operation, the Dybkjaer reference certainly does not teach, suggest or provide motivation to arrive at the subject matter of claims 42 or 43. Additionally, the Yamaoka reference is completely unconcerned with the operation of two reactors in parallel and, thus, also fails to suggest or provide motivation to arrive at the subject matter of claims 42 or 43.

Moreover, the Echigo reference is only concerned with the operating of steam reforming reactors in parallel. As such, during downward transients, the Echigo reference teaches and discloses adjusting the operation of the steam reforming reactors. The adjusting of the steam reforming reactors to meet a downward transient, however, is completely different than that called for in claims 43 and 44. Specifically, with the fuel processing system of the present invention utilizing both an autothermal reforming reactor operating in parallel with steam reforming reactor, the adjusting of the flows and of the reactors to meet the downward transient is done in a manner that is not contemplated by the Echigo reference. As such, it is respectfully submitted that the Echigo does not provide any teaching, suggestion or motivation to operate the fuel processing system as called for in claims 43 and 44. Accordingly, for at least these reasons it is respectfully submitted that claims 43 and 44 are further patentable over the prior art of record and withdrawal of the instant rejection is requested.

Moreover, claim 46 is further patentable over the prior art of record for at least the same reasons stated above with reference to claim 1, 15 and 25. Thus, withdrawal of the instant rejection is requested.

It is respectfully submitted that caim 48 is further patentable over the prior art of record for at least the same reasons stated above with reference to claims 6, 19 and 26. Thus, withdrawal of the instant rejection is requested.

It is respectfully submitted that claim 50 is further patentable over the prior art of record for at least the same reasons stated above with reference to claims 8, 16 and 28. Thus, withdrawal of the instant rejection is requested.

It is also respectfully submitted that claim 51 is further patentable over the prior art of record for at least the same reasons stated above with reference to claims 9, 21 and 22. As such, withdrawal of the instant rejection is requested.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action and the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the

Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: November 27, 2006

By: _____
Jeffrey H. Urian, Reg. No. 46,232

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600

JHU/ps